

REMARKS

Reconsideration and withdrawal of the rejections of this application and consideration and entry of this paper are respectfully requested in view of the herein amendment, remarks, and accompanying information, which place the application in condition for allowance.

Examiners Mosher and Campell are thanked for the courtesies extended during the November 13, 2008 personal interview attended by the Examiners, the undersigned, and Drs. Russell Garman and Enzo Paoletti. This paper reflects matters discussed.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 33-40 and 53 are currently under consideration. Claim 52 is cancelled and claim 53 is amended, without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents.

The amendment to claim 53 is to correct a typo. No new matter is added.

It is submitted that the claims herewith are patentably distinct over the prior art, and these claims are in full compliance with the requirements of 35 U.S.C. §112. The amendments to the claims presented herein are not made for purposes of patentability within the meaning of 35 U.S.C. §§§§ 101, 102, 103 or 112. Rather, these amendments and additions are made simply to clarify the scope of protection to which Applicant is entitled. Furthermore, it is explicitly stated that these amendments should not give rise to any estoppel, as they are not narrowing amendments.

Correction of Inventorship

The inventorship of all of the existing amended claims in this application resides solely with Dr. Enzo Paoletti, as evidenced by attached Exhibit 1, a Declaration by Dr. Paoletti. The attachment to the Paoletti Declaration of Exhibit 1 comes from the records of the U.S. Patent and Trademark Office for Interference No. 103,399. This is the operative statement of facts pursuant to 37 C.F.R. § 1.48(b). Nothing herein is to be construed as any assent or consent to this inventive entity amendment by any other person named as an inventor on applications or patents in the lineage of the instant application; but, is to be construed as the assignee and other interested commercial parties assenting and consenting to the amendment of the inventive entity, and that the amendment of the inventive entity was undertaken after an actual investigation, including for records evidencing who had conception of the invention now claimed.

Accordingly, the amendment herein has removed Dr. Dennis Panicali as an inventor from this application. It is respectfully requested that the inventive entity be amended to reflect that Dr. Enzo Paoletti is the sole inventor.

II. THE REJECTION UNDER 35 U.S.C. § 102 IS OVERCOME

Section 102(e)

Claims 33 and 34 were rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Moss *et al.* (U.S. Patent No. 6,998,252). The Office Action contended that claims 33 and 34 are denied the benefit of priority U.S. application Serial No. 06/334,456 ("the '456 application"). The Office Action further alleged that Moss *et al.*, claiming priority U.S. application Serial No. 06/445451 ("the '451 application"), relates to a plasmid pMM20 which has a herpes simplex TK gene under vaccinia expression control and flanked by vaccinia DNA from a nonessential region. This rejection is respectfully traversed.

The '456 application discloses multiple species demonstrating expression under vaccinia control, which support the present claims. In fact, the Office Action concedes that the '456 application teaches non essential regions of the vaccinia genome: "the instant specification teaches . . . vaccinia nonessential regions in the region differing between L and S variants of WR, the HindIII F fragment, and the AvaI H fragment." Office Action, p. 3.

Indeed, the '456 application shows expression of donor DNA located within the HindIII F-fragment of the vaccinia virus genome. *See* the '456 application as U.S. Patent No. 4,769,330, Examples X and XI. The expression of the donor DNA is directed by sequences in the HindIII F-fragment and, hence, is under vaccinia control.

The '456 application also indicates that donor DNA can be inserted into the region present within the L-variant but deleted from the S variant. *See* the '456 application, col. 3, ll. 15-27. It was known in the art that this region comprised expressed polypeptides which are nonessential to the virus. *See* Moss *et al.* (*J Virol* 1981, 40: 387-395; submitted herewith as Exhibit 2), p. 394. One of ordinary skill in the art would recognize that this region comprises sequences to control expression; hence, donor DNA in the region present within the L-variant but deleted from the S variant is expressed under vaccinia control.

The '456 application further discloses that donor DNA can be inserted into the AvaI H-fragment of the vaccinia genome. *See* the '456 application, col. 8, ll. 8-15. According to the

'456 application, the Aval H-fragment contains Bam HI sites which permit the introduction of the HSV TK gene. Therefore, the skilled artisan would recognize that donor DNA inserted into Aval H-fragment is expressed under vaccinia control as well.

The '456 application also discloses an S-variant vaccinia mutant which is free of any naturally-occurring functional TK gene. See the '456 application, col. 13, ll. 22-36. The skilled artisan would recognize that the region of the TK gene is therefore an additional vaccinia nonessential region which – by virtue of the fact that the TK gene is expressed in L-variant vaccinia – comprises sequences that can control expression of donor DNA inserted into this region.

Moreover, it was known in the art that various poxviruses, including vaccinia, rabbitpox, and cowpox, contain inverted terminal repetitions or near terminal repetitions which are not required for DNA replication. See Mackett *et al.* (*J Gen Virol* 1979, 45: 683-701; submitted herewith as Exhibit 3). This represents additional nonessential regions in vaccinia which were known at the time that the '456 application was filed.

In view of the foregoing, the '456 application clearly discloses multiple species of nonessential regions wherein donor DNA can be inserted thereto and expressed under vaccinia control. Accordingly, present claims 33 and 34 are amply supported by, and can claim priority to, the '456 application. As a result, Moss *et al.* fails to stand as prior art over claims 33 and 34, because Moss *et al.* was not filed in the United States before the present invention thereof by Applicant.

In addition to the foregoing showing that the present application can claim priority to the '456 application, Applicant also respectfully submits herewith as Exhibit 4 another Declaration by inventor Dr. Enzo Paoletti. The Office Action had accorded the claims the benefit of U.S. application Serial No. 06/446,824 ("the '824 application"), filed December 8, 1992, now U.S. Patent No. 4,603,112. The Declaration is sufficient to overcome the grounds of rejection under 35 U.S.C. § 102(e), because the Declaration clearly states that the subject matter relied on by the Examiner to accord instant claims 33 and 34 the date of the '824 application antedates Moss *et al.* within the purview of 37 C.F.R. § 1.131 and should not be considered available as prior art against the present application (see Exhibit 4, paragraph 2).

Also attached as Exhibit 5 is a true copy of a draft Declaration provided to Dr. Panicali. The undersigned confirms his understanding that Dr. Panicali has no dispute with the veracity of

the statements in Exhibit 5; and, states that Dr. Panicali had requested to be relieved of obligations as to confidentiality before executing the attached Declaration. As relieving Dr. Panicali of such obligations was not acceptable, and in view of the Declaration of Exhibit 1, it was not deemed suitable or necessary to proceed with obtaining from Dr. Panicali an executed version of Exhibit 5. Exhibit 5 is provided so that the U.S. Patent and Trademark Office may have the foregoing herein stated information, and text to which the undersigned verily believes Dr. Panicali agrees with, and which would be provided in executed form, if Dr. Panicali was an inventor.

In view of the foregoing, reconsideration and withdrawal of the Section 102(e) rejection are respectfully requested.

Section 102(b)

Claim 52 was rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Boyle *et al.* (*Virus Res* 1988, 10: 343-356) or Taylor *et al.* (*Vaccine* 1988, 6: 504-508).

While Applicant disagrees with the rejection, in order to expedite prosecution, claim 52 is cancelled without prejudice, without admission, without surrender of subject matter, and without any intention of creating any estoppel as to equivalents. Hence, the rejection of claim 52 under Section 102(b) is rendered moot.

Reconsideration and withdrawal of the Section 102(b) rejection are therefore respectfully requested.

III. THE DOUBLE PATENTING REJECTIONS ARE OVERCOME

Claims 33, 52, and 53 were rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable in view of claims 1-7 of U.S. Patent No. 5,747,324 ("the '324 patent"), and in view of claims 1-4 of U.S. Patent No. 5,614,404 ("the '404 patent"). Also, claim 52 was rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable in view of claims 1-5 of U.S. Patent No. 5,093,258 ("the '258 patent"). Further, claims 52 and 53 were rejected on the ground of nonstatutory obviousness-type double patenting as allegedly being unpatentable in view of claims 1-11 of U.S. Patent No. 6,632,438 ("the '438 patent"), and in view of claims 4 and 6 of U.S. Patent No. 6,699,475 ("the '475 patent"). In these rejections, the Office Action employed a one-way

analysis of obviousness. These rejections are respectfully traversed and will be addressed collectively.

Initially, Applicant reiterates that instant claim 52 is cancelled. Hence, the double patenting rejection over claims 1-5 of the '258 patent is obviated. Also, the double patenting rejections over claims 1-7 of the '324 patent, claims 1-4 of the '404 patent, claims 1-11 of '438 patent, and claims 4 and 6 of the '475 are obviated in part.

The one-way obviousness analysis employed for the double patenting rejections over claims 1-11 of the '438 patent and claims 4 and 6 of the '475 patent is improper. The Office Action contended that, although the present application has an earlier filing date than the cited patents, a one-way obviousness analysis is appropriate since the rejected claims were presented for the first time on November 21, 2005. It is respectfully submitted that there is no basis in statute, the MPEP, or case law which supports this application of the one-way obviousness analysis to the rejected claims. It is respectfully requested that the Examiner provide support for her application of the one-way obviousness analysis in these rejections – which could not be done by the Examiner during the personal interview – or withdraw these rejections. Furthermore, it is asserted that the subject matter of claim 53 was pending via claims 33 and 34 pending, such that the subject matter of claim 53 was pending prior to November 21, 2005.

It is also respectfully asserted that the one-way obviousness test for the double patenting rejections based on claims 1-7 of the '324 patent, claims 1-4 of the '404 patent, claims 1-11 of the '438 patent and claims 4 and 6 of the '475 patent are improper, as the following criteria are met: (i) the present application has an earlier filing date; (ii) there was an administrative delay in prosecution of the present application (e.g., as shown by, for example, the suspension of prosecution during Interference No. 103,399, the delay by the U.S. Patent and Trademark Office in attending to the instant application after the conclusion of Interference No. 103,399, and the delays by the U.S. Patent and Trademark Office in addressing the post-Interference Petition and in issuing the May 16, 2008 Office Action after the Decision on Petition); and (iii) the conflicting claims could not have been filed in a single application. See MPRP § 804, paragraph II.B.1(a).

As described above, claim 33, as well as claim 53, rightly claim the benefit of the '456 application, filed December 24, 1981, and the '824 application, filed December 8, 1982. In contrast, the effective filing date of the '324 patent is June 10, 1988 at the earliest; the effective

filing date of the '404 patent is June 10, 1988 at the earliest; the effective filing date of the '438 patent is March 6, 1992 at the earliest; and the effective filing date of the '475 patent is September 2, 1987 at the earliest. The conception and reduction of the claims in these cited patents occurred long after the filing of the '456 or '824 applications. Therefore, the claims of the instant application claim an earlier filing date than the effective filing date of any claims of the patents cited in the Office Action.

Further, the conflicting claims could not have been disclosed in the same application. Initially, reference is made to the Exhibit 4 Declaration by Dr. Enzo Paoletti, which asserts that claims 1-11 of the '438 patent could not have been disclosed in either the '456 application or the '824 application.

Also, reference is made to the Exhibit 5 Declaration reviewed by Dr. Dennis Panicali, and as to which the undersigned understands that Dr. Panicali does not contest the veracity of the statements therein the Declaration, which states that claims 1-7 of the '324 patent, claims 1-4 of the '404 patent, and claims 4 and 6 of the '475 patent could not have been disclosed in either the '456 application or the '824 application. Again, as stated above, in view of the conditions Dr. Panicali placed on executing Exhibit 5 (relief from confidentiality obligations), and in view of Exhibit 1 and the inventorship amendment, it was not deemed suitable or necessary to obtain Dr. Panicali's signature on Exhibit 5. The undersigned again confirms that from communications with Dr. Panicali, there is no disagreement by Dr. Panicali with the content of Exhibit 5.

Moreover, as Dr. Panicali is not an inventor of the presently claimed subject matter (see the Declaration of Exhibit 1 and the inventive entity amendment herein), the '324 patent, the '404 patent, '258 patent, and the '475 patent cannot be cited in a double patenting rejection of the present claims; none of these cited patents and the present application share at least one common inventor, are commonly assigned/owned, or are subject to a joint research agreement.

In view of the above, the one-way analysis of obviousness was improper for the double patenting rejections, and a two-way analysis of obviousness must be applied. *In re Berg*, 46 USPQ2d 1226 (Fed. Cir. 1998). In a two-way analysis, the application claims have to be considered in view of the cited patents' claims, and the cited patent's claims have to be considered in view of the application's claims.

Turning to the cited patents, present claims 33 and 53 are not obvious in view of cited claims 1-7 of the '324 patent, claims 1-4 of the '404 patent, claims 1-11 of the '438 patent, or

claims 4 and 6 of the '475 patent. The present claims require the presence of donor DNA in a nonessential region. Further, the cited patent claims can be practiced without insertion of donor DNA in a nonessential region as required in the present claims. Furthermore, the precise recitations of the cited patent claims are not taught or suggested by instant claims 33 and 53. And during the interview, the Examiners acknowledged that a double patenting rejection could not stand if a two-way obviousness test was employed. Thus, claims 33 and 53 are not obvious over the patent claims cited in the double patenting rejections, and the double patenting rejections cannot stand as a matter of fact or law.

For at least the reasons presented herein, present claims 33 and 53 are not subject to double patenting over claims 1-7 of the '324 patent, claims 1-4 of the '404 patent, claims 1-11 of the '438 patent, or claims 4 and 6 of the '475 patent. Accordingly, reconsideration and withdrawal of the double patenting rejections are respectfully requested.